Myofacial Trigger Points (MTrPs)
- "hyperirritable spots in skeletal muscle that are associated with a hypersensitive palpable nodule in a taught band." (Travall and Simons 1999)
- Consist of a bundle of contracted muscle fibres
- Produce local or referred pain or paresthesia when active.
- Fairly predictable referral patterns.
- Muscle twitch and jump sign when needled (deep needling).

Types of trigger points
- Active TP – pressing point reproduces current symptoms.
- Latent – not currently producing symptoms, but has potential to become active if recurrent strain etc. eg painful Co 10 on palpation on patient with tennis elbow on non-painful arm.
- Primary – often located around the centre of a motor unit. Treating this will have a broader effect
- Secondary – develop in response to primary. May not be in same muscle. Often will be in antagonist muscle as well.

Why are trigger points important?
- Their presence indicates unresolved past injury, or ongoing trauma eg, postural strain, radiculopathy, stress.
- They cause shortening of the muscle fibres and impact on function (eg reduced joint ROM), increasing further compensatory patterns and Qi & Blood stagnation; increases risk of future injury/pathology.
- They may cause the presenting symptom.
- Treating trigger points has ANS and central neural impacts, not just local impacts. (central sensitisation, alldynia, hyperalgesia: remember, many are standard acupuncture points as well).
- Better, faster results.
Treating trigger points
- Massage (Tuina, Acupressure, Shiatsu etc.)
- Stretching
- Injection: local anaesthetic/saline
- Acupuncture

Acupuncture techniques
- Deep needling – typical technique used to evoke twitch response and typical “Ashi!” reaction. Increased risk of organ puncture and pneumothorax. The subject of this workshop.
- Superficial needling – insertion from 5-10 mm over a trigger point. Typically no twitch response. Typically used where vessel puncture a risk eg anterior neck points; or sensitive patient.
- Electro-stimulation; -points connected via electro stimulator at 4 Hz or dense-disperse. Good for tight bands eg lumbar Bladder points, forearm.

Trigger Point acupuncture and Risks
- Characterised by deep techniques with high risk of organ puncture.
- Increased risk of bleeding/bruising compared to some other acupuncture methods.
- Typically painful during treatment & up to 24 hr-48hours post treatment.
- Serious risks linked to duration of training (Janz & Adams 2011).

Pneumothorax Risk
- MTrP needling favours deep techniques that are typically painful at the time and can result in 24 hours post treatment pain.
- Inherently higher risk of pneumothorax with deep techniques (Gunn 1989)
- Pneumothorax is the most common cause of death from acupuncture (Ernst 2010)
- Guild Insurance (WA) notes pneumothorax associated with physiotherapy acupuncture and advocates improved training. (Baker 2006)

Lung Fields
- 1. Anterior border: Apex=3-4 cm above inner third of clavicle, Base=rests on diaphragm (6th rib)
- 2. Posterior border:
  - Apex=C7, Base=T10
- 3. Lateral border:
  - Apex=axilla down to 7-8th rib

Iatrogenic pneumothorax: safety concerns when using acupuncture or dry needling in the thoracic region (2011) by Leigh McCutcheon & Michael Yelland
- Pneumothoraxes have been reported from needling the following points and region ST11 and ST12 in the supraclavicular region; LI2, ST2, and KI27 in the infraclavicular region; KI22 and KI27, ST12 to ST18 in the mid-clavicular line, and BL40 to BL50, rhomboids, serratus posterior superior, levator scapulae, splenius cervicis, longissimus thoracis, iliocostalis thoracis, semispinalis thoracis, cervicis and capitus in the medial scapular. This paper is available at: http://www.researchgate.net/publication/23324386_Iatrogenic_pneumothorax_safety_concerns_when_using_acupuncture_or_dry_needling_in_the_thoracic_region

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Posterior Lung Fields

Pneumothorax Signs & Symptoms
- Small pneumothoraces are occasionally asymptomatic.
- Symptoms of pneumothorax include dyspnea and pleuritic chest pain.
- Dyspnea may be sudden or gradual in onset depending on the rate of development and size of the pneumothorax.
- Pain can simulate pericarditis, pneumonia, pleuritis, pulmonary embolism, musculoskeletal injury (when referred to the shoulder), or an intra-abdominal process (when referred to the abdomen).
- Pain can also simulate cardiac ischemia, although typically the pain of cardiac ischemia is not pleuritic.
- If the pneumothorax is large, the affected side may be enlarged with the trachea visibly shifted to the opposite side. With tension pneumothorax, hypotension can occur.

Pneumothorax Treatment
- Immediate needle decompression for tension pneumothoraces
- Observation and follow-up x-ray for small, asymptomatic, primary spontaneous and iatrogenic pneumothoraces
- ie follow-up chest x-rays done at about 6 and 48 h show no progression.
- Catheter aspiration for large or symptomatic primary or iatrogenic spontaneous pneumothoraces
- Tube thoracostomy for secondary and traumatic pneumothoraces

Pneumothorax first aid
- Management of a Penetrating Chest Wound:
  1. Follow DRSABCD.
  2. Place patient in whatever position makes breathing easiest.
  3. Cover the wound – use the patient’s or your own gloved hand.
  4. Cover wound with a dressing, such as plastic sheet, bag, aluminium foil or sterile dressing.
  5. Seal with tape on three sides (not bottom), to allow fluid to escape.
  6. Call triple zero for an ambulance
  7. Remember symptoms may not manifest for several hours after injury.

Method for Deep needling.
- Consider patient position wrt point selection.
- Palpate to locate the trigger point.
- Isolate the trigger point with the left hand (pinching up point preferred if over sensitive underlying structures eg lungs).
- Insert needle into trigger point.
- Lift and thrust with pecking action to elicit twitch response.
- May need to use chicken feet method to find active Tp
- Retention time – 30 seconds to as long as a typical acupuncture treatment.
- Only stimulate to patients acceptance “Would you like me to use some more points or is that enough for today?”
- Swab essential to control any post treatment bleeding.
- May need to use at least one gloved hand.

Contra-indications for Deep Needling of Trigger Points
- Sensitive patient (consider massage or superficial needling instead)
- Bleeding disorder/anti-coagulants
- Weak constitution
- Anxious patient – strong sensations rarely acceptable.
- ? pregnancy
Cautions

- Points overlying the Lungs and pleura
- Avoid intercostal spaces
- Points overlying other internal organs
- Points overlying major vessels & nerves
- Avoid leaving patient alone with needles in situ at GB21 or other similarly potentially vulnerable locations when deep needling techniques are used.
- If it is desirable for needles to be retained and the patient left unattended consider partial withdrawal following initial needling.

Post treatment

- Stretch treated muscle post-treatment for best results.
- Remind patient that may be achy in the treated area for one or two days and that this is typical of this specific technique.
- Record in patient notes if a trigger point has been used eg GB21 T
- Educate that follow-up treatment is necessary to achieve a lasting result, and points become less reactive as pathology resolves.
- Consider giving written advice regarding the different types of acupuncture methods you use, and that you also use other non-painful techniques. Trigger points are just one part of the toolkit.

Trigger Point Acupuncture

- Don’t forget, your acupuncturists!
- Use appropriate distal points where indicated.
- Resolving symptoms associated with trigger points may give rapid initial relief – now look to what’s left.
- Postural issues leading to Qi & Blood stagnation? – exercise and counselling
- Stress issues leading to Qi & Blood stagnation? (ANS) - acupuncture/herbs/exercise/counselling
- Referral

Locating Points

- Palpation
- Guided by charts of common referral patterns
- Can take a purely anatomical approach or regional approach.
- Points are often not at the location of pain:
  - If symptoms on front – look to back
  - If symptoms below – look above etc.
- Compressing a trigger point produces a pattern of pain or paresthesia, often distal to the point.

Local Twitch Response

- Dispersing stagnant blood
- Allows circulation of Qi
- Local spinal reflex arc
- Motor end plate

Jianjing GB21

- Noteworthy Peculiarities About This Point Holmes Keiko Acupuncture Today June, 2004, Vol. 05, Issue 06
  1. It is the highest point on the trapezius in the sagittal plane.
  2. Sit astride on the very apex of the lung, which rises in a dome, bilaterally.
  3. If an insertion is done using a perpendicular trajectory, an injury is likely.
  4. Any usage must factor in the rise of lung tissue at inspiration.
  5. If the point is needled in any position but prone, the risk increases greatly.
  6. If the patient coughs or sneezes, the danger becomes manifold.
  7. In tall men, and in smokers between the ages of 20–40, the risk of spontaneous pneumothorax is significant.
  8. Constant supervision is necessary at all times during treatment if this point is used.
  9. The risk of accident increases if the risk was not explained to the patient.
  X. In a bony, thin man or woman, the hazard increases greatly.
  XI. In a person with concomitant scoliosis, lordosis and kyphosis, risk increases.
Jianjing GB21: Contra-indications

- Patients have individual anatomical characteristics which may render this point unsuitable to use.
  - Thin or emaciated
  - Scoliosis or thoracic kyphosis, lordosis
  - Unable to remain still eg concomitant cough or sneezing
  - Unable to follow directions to remain still
  - If you are not confident to needle this point in a given case – do not use it.

Jianjing GB-21. On the anterior aspect of the chest (at the mid-clavicular line) the pleural cavity extends down to the 8th intercostal space, and the upper lobe of the lung rises into the supra-clavicular fossa on inspiration.

Although Jianjing GB-21 is usually needled perpendicularly to a depth of 0.3-0.5 cun, the authors prefer to pick up the trapezius muscle and insert the needle obliquely, then release the muscle, especially with emaciated patients.

Alicia Grant & Prof. Bo-Ying Ma
The Safe Use of Difficult and Dangerous Acupuncture Points

Common Shoulder Points
- Teres Minor
- Infraspinatus

Shoulder
- Supraspinatus
- Subscapularis